SEQUENCE LISTING

<110> Biogen, Inc.
Sah, Dinah Wen-Yee

<120> Treatment Using Neublastin Polypeptides

<130> 00689-507 (A118) utility

<140> Filed Herewith
<141> 2002-02-28

<150> USSN 06/287,554
<151> 2001-03-28

<160> 27

<170> PatentIn Ver. 2.1

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bridge

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atg gaa ctt gga ctt gga ggc ctc tcc acg ctg tcc cac tgc ccc tgg 105
Met Glu Leu Gly Leu Gly Gly Leu Ser Thr Leu Ser His Cys Pro Trp
-80 -75 -70 -65

cct agg cgg cag cct gcc ctg tgg ccc acc ctg gcc gct ctg gct ctg 153
Pro Arg Arg Gln Pro Ala Leu Trp Pro Thr Leu Ala Ala Leu Ala Leu
-60 -55 -50

ctg agc agc gtc gca gag gcc tcc ctg ggc tcc gcg ccc cgc agc cct 201
Leu Ser Ser Val Ala Glu Ala Ser Leu Gly Ser Ala Pro Arg Ser Pro
-45 -40 -35

gcc ccc cgc gaa ggc ccc ccg cct gtc ctg gcg tcc ccc gcc ggc cac 249
Ala Pro Arg Glu Gly Pro Pro Pro Val Leu Ala Ser Pro Ala Gly His
-30 -25 -20

ctg ccg ggg gga cgc acg gcc cgc tgg tgc agt gga aga gcc cgg cgg 297
Leu Pro Gly Gly Arg Thr Ala Arg Trp Cys Ser Gly Arg Ala Arg Arg
-15 -10 -5 -1

ccg ccg ccg cag cct tct cgg ccc gcg ccc ccg ccg cct gca ccc cca 345
Pro Pro Pro Gln Pro Ser Arg Pro Ala Pro Pro Pro Ala Pro Pro
1 5 10 15

tct gct ctt ccc cgc ggg ggc cgc gcg gcg cgg gct ggg ggc ccg ggc 393
Ser Ala Leu Pro Arg Gly Gly Arg Ala Ala Arg Ala Gly Gly Pro Gly
20 25 30

agc cgc gct cgg gca gcg ggg gcg cgg ggc tgc cgc ctg cgc tcg cag 441
Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln
35 40 45

ctg gtg ccg gtg cgc gcg ctc ggc ctg ggc cac cgc tcc gac gag ctg 489
Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu
50 55 60

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gtg cgt ttc cgc ttc tgc agc ggc tcc tgc cgc cgc gcg cgc tct cca   537
Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro
 65                  70                  75                  80

cac gac ctc agc ctg gcc agc cta ctg ggc gcc ggg gcc ctg cga ccg   585
His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro
                 85                  90                  95

ccc ccg ggc tcc cgg ccc gtc agc cag ccc tgc tgc cga ccc acg cgc   633
Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg
            100                 105                 110

tac gaa gcg gtc tcc ttc atg gac gtc aac agc acc tgg aga acc gtg   681
Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val
        115                 120                 125

gac cgc ctc tcc gcc acc gcc tgc ggc tgc ctg ggc tgagggctcg       727
Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
    130                 135                 140

ctccagggct ttgcagactg gacccttacc ggtggctctt cctgcctggg accctcccgc 787

agagtcccac tagccagcgg cctcagccag ggacgaaggc ctcaaagctg agaggcccct 847

accggtgggt gatg                                                   861
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<213> Homo sapiens

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Met Glu Leu Gly Leu Gly Gly Leu Ser Thr Leu Ser His Cys Pro Trp
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Pro Arg Arg Gln Pro Ala Leu Trp Pro Thr Leu Ala Ala Leu Ala Leu
                -60                 -55                 -50

Leu Ser Ser Val Ala Glu Ala Ser Leu Gly Ser Ala Pro Arg Ser Pro
            -45                 -40                 -35

Ala Pro Arg Glu Gly Pro Pro Pro Val Leu Ala Ser Pro Ala Gly His
        -30                 -25                 -20

Leu Pro Gly Gly Arg Thr Ala Arg Trp Cys Ser Gly Arg Ala Arg Arg
    -15                 -10                  -5                  -1

Pro Pro Pro Gln Pro Ser Arg Pro Ala Pro Pro Pro Pro Ala Pro Pro
  1               5                  10                  15

Ser Ala Leu Pro Arg Gly Gly Arg Ala Ala Arg Ala Gly Gly Pro Gly
             20                  25                  30

Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln
         35                  40                  45
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Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu
     50                  55                  60

Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro
 65                  70                  75                  80

His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro
                 85                  90                  95

Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg
            100                 105                 110

Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val
        115                 120                 125

Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
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tggggtcttc tccaaatgtc tagcccccac ctagagggac ctagcctagc cagcggggac 120

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cggatccgga gggtggagcg gccaggtgag ccctgaaagg tggggcgggg cgggggcgct 180

ctgggcccca ccccgggatc tggtgacgcc ggggctggaa tttgacaccg gacggcggcg 240

ggcaggaggc tgctgaggga tggagttggg ctcggccccc agatgcggcc cgcgggctct 300

gccagcaaca agtccctcgg gccccagccc tcgctgcgac tggggcttgg agccctgcac 360

ccaagggcac agaccggctg ccaaggcccc acttttaact aaaagaggcg ctgccaggtg 420

cacaactctg ggcatgatcc acttgagctt cgggggaaag cccagcactg gtcccaggag 480

aggcgcctag aaggacacgg accaggaccc ctttggtatg gagtgaacgc tgagcatgga 540

gtggaaggaa ctcaagttac tactttctcc aaccaccctg gtaccttcag ccctgaagta 600

cagagcagaa gggtcttaga agacaggacc acagctgtgt gagtctcccc cctgaggcct 660

tagacgatct ctgagctcag ctgagctttg tttgcccatc tggagaagtg agccattgat 720

tgaccttgtg gcatcgcgaa ggaacaggtc ctgccaagca cctaacacag agagcaaggt 780

tctccatcgc agctaccgct gctgagttga ctctagctac tccaacctcc tgggtcgctt 840

cgagagactg gagtggaagg aggaataccc caaaggataa ctaactcatc tttcagtttg 900

caagctgccg caggaagagg gtggggaaac gggtccacga aggcttctga tgggagcttc 960

tggagccgaa agct atg gaa ctg gga ctt gca gag cct act gca ttg tcc   1010
               Met Glu Leu Gly Leu Ala Glu Pro Thr Ala Leu Ser
               -80                 -75                 -70

cac tgc ctc cgg cct agg tgg cag tca gcc tgg tgg cca acc cta gct   1058
His Cys Leu Arg Pro Arg Trp Gln Ser Ala Trp Trp Pro Thr Leu Ala
           -65                 -60                 -55

gtt cta gcc ctg ctg agc tgc gtc aca gaa gct tcc ctg gac cca atg   1106
Val Leu Ala Leu Leu Ser Cys Val Thr Glu Ala Ser Leu Asp Pro Met
       -50                 -45                 -40

tcc cgc agc ccc gcc gct cgc gac ggt ccc tca ccg gtc ttg gcg ccc   1154
Ser Arg Ser Pro Ala Ala Arg Asp Gly Pro Ser Pro Val Leu Ala Pro
   -35                 -30                 -25

ccc acg gac cac ctg cct ggg gga cac act gcg cat ttg tgc agc gaa   1202
Pro Thr Asp His Leu Pro Gly Gly His Thr Ala His Leu Cys Ser Glu
-20                 -15                 -10                  -5

aga acc ctg cga ccc ccg cct cag tct cct cag ccc gca ccc ccg ccg   1250
Arg Thr Leu Arg Pro Pro Pro Gln Ser Pro Gln Pro Ala Pro Pro Pro
            -1   1               5                  10

cct ggt ccc gcg ctc cag tct cct ccc gct gcg ctc cgc ggg gca cgc   1298
Pro Gly Pro Ala Leu Gln Ser Pro Pro Ala Ala Leu Arg Gly Ala Arg
        15                  20                  25

gcg gcg cgt gca gga acc cgg agc agc cgc gca cgg acc aca gat gcg   1346
Ala Ala Arg Ala Gly Thr Arg Ser Ser Arg Ala Arg Thr Thr Asp Ala
```

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     30                  35                  40

cgc ggc tgc cgc ctg cgc tcg cag ctg gtg ccg gtg agc gcg ctc ggc   1394
Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Ser Ala Leu Gly
 45                  50                  55                  60

cta ggc cac agc tcc gac gag ctg ata cgt ttc cgc ttc tgc agc ggc   1442
Leu Gly His Ser Ser Asp Glu Leu Ile Arg Phe Arg Phe Cys Ser Gly
                 65                  70                  75

tcg tgc cgc cga gca cgc tcc cag cac gat ctc agt ctg gcc agc cta   1490
Ser Cys Arg Arg Ala Arg Ser Gln His Asp Leu Ser Leu Ala Ser Leu
             80                  85                  90

ctg ggc gct ggg gcc cta cgg tcg cct ccc ggg tcc cgg ccg atc agc   1538
Leu Gly Ala Gly Ala Leu Arg Ser Pro Pro Gly Ser Arg Pro Ile Ser
         95                  100                 105

cag ccc tgc tgc cgg ccc act cgc tat gag gcc gtc tcc ttc atg gac   1586
Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp
    110                 115                 120

gtg aac agc acc tgg agg acc gtg gac cac ctc tcc gcc act gcc tgc   1634
Val Asn Ser Thr Trp Arg Thr Val Asp His Leu Ser Ala Thr Ala Cys
125                 130                 135                 140

ggc tgt ctg ggc tgaggatgat ctatctccaa gcctttgcac actagaccca       1686
Gly Cys Leu Gly

tgtgttgccc tacctggaac agctccaccg ggcctcacta accaggagcc tcaactcagc 1746

aggatatgga ggctgcagag ctcaggcccc aggccggtga gtgacagacg tcgtcggcat 1806

gacagacaga gtgaaagatg tcggaaccac tgaccaacag tcccaagttg ttcatggatc 1866

ccagctctac agacaggaga aacctcagct aaagagaact cctctgggag aatccagaaa 1926

tggccctctg tcctggggaa tgaattttga agagatatat atacatatat acattgtagt 1986

cgcgttgctg gaccagcctg tgctgaaacc agtcccgtgt tcacttgtgg aagccgaagc 2046

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ctttagtgag ggttaatttg tgatcccggg                                   2136


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Met Glu Leu Gly Leu Ala Glu Pro Thr Ala Leu Ser His Cys Leu Arg
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Pro Arg Trp Gln Ser Ala Trp Trp Pro Thr Leu Ala Val Leu Ala Leu
                -60                 -55                 -50
```

```
Leu Ser Cys Val Thr Glu Ala Ser Leu Asp Pro Met Ser Arg Ser Pro
            -45                 -40                 -35

Ala Ala Arg Asp Gly Pro Ser Pro Val Leu Ala Pro Pro Thr Asp His
        -30                 -25                 -20

Leu Pro Gly Gly His Thr Ala His Leu Cys Ser Glu Arg Thr Leu Arg
    -15                 -10                  -5              -1

Pro Pro Pro Gln Ser Pro Gln Pro Ala Pro Pro Pro Pro Gly Pro Ala
  1               5                  10                  15

Leu Gln Ser Pro Pro Ala Ala Leu Arg Gly Ala Arg Ala Ala Arg Ala
             20                  25                  30

Gly Thr Arg Ser Ser Arg Ala Arg Thr Thr Asp Ala Arg Gly Cys Arg
         35                  40                  45

Leu Arg Ser Gln Leu Val Pro Val Ser Ala Leu Gly Leu Gly His Ser
     50                  55                  60

Ser Asp Glu Leu Ile Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg
 65                  70                  75                  80

Ala Arg Ser Gln His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly
                85                  90                  95

Ala Leu Arg Ser Pro Pro Gly Ser Arg Pro Ile Ser Gln Pro Cys Cys
            100                 105                 110

Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr
        115                 120                 125

Trp Arg Thr Val Asp His Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
    130                 135                 140
```

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<211> 224
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<213> Rattus sp.

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             20   25   30

Leu Ser Ser Val Thr Glu Ala Ser Leu Asp Pro Met Ser Arg Ser Pro
         35   40   45

Ala Ser Arg Asp Val Pro Ser Pro Val Leu Ala Pro Pro Thr Asp Tyr
     50   55   60

Leu Pro Gly Gly His Thr Ala His Leu Cys Ser Glu Arg Ala Leu Arg
 65   70   75   80

Pro Pro Pro Gln Ser Pro Gln Pro Ala Pro Pro Pro Pro Gly Pro Ala
                 85   90   95

Leu Gln Ser Pro Pro Ala Ala Leu Arg Gly Ala Arg Ala Ala Arg Ala
            100   105   110

Gly Thr Arg Ser Ser Arg Ala Arg Ala Thr Asp Ala Arg Gly Cys Arg
        115   120   125

Leu Arg Ser Gln Leu Val Pro Val Ser Ala Leu Gly Leu Gly His Ser
    130   135   140

Ser Asp Glu Leu Ile Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg
145   150   155   160

Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly

```
                165                 170                 175

Ala Leu Arg Ser Pro Pro Gly Ser Arg Pro Ile Ser Gln Pro Cys Cys
            180                 185                 190

Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr
        195                 200                 205

Trp Arg Thr Val Asp His Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
    210                 215                 220
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<213> Homo sapiens

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Met Gln Arg Trp Lys Ala Ala Ala Leu Ala Ser Val Leu Cys Ser Ser
  1               5                  10                  15

Val Leu Ser Ile Trp Met Cys Arg Glu Gly Leu Leu Leu Ser His Arg
             20                  25                  30

Leu Gly Pro Ala Leu Val Pro Leu His Arg Leu Pro Arg Thr Leu Asp
         35                  40                  45

Ala Arg Ile Ala Arg Leu Ala Gln Tyr Arg Ala Leu Leu Gln Gly Ala
     50                  55                  60

Pro Asp Ala Met Glu Leu Arg Glu Leu Thr Pro Trp Ala Gly Arg Pro
 65                  70                  75                  80

Pro Gly Pro Arg Arg Arg Ala Gly Pro Arg Arg Arg Arg Ala Arg Ala
                 85                  90                  95

Arg Leu Gly Ala Arg Pro Cys Gly Leu Arg Glu Leu Glu Val Arg Val
            100                 105                 110

Ser Glu Leu Gly Leu Gly Tyr Ala Ser Asp Glu Thr Val Leu Phe Arg
        115                 120                 125

Tyr Cys Ala Gly Ala Cys Glu Ala Ala Ala Arg Val Tyr Asp Leu Gly
    130                 135                 140

Leu Arg Arg Leu Arg Gln Arg Arg Arg Leu Arg Arg Glu Arg Val Arg
145                 150                 155                 160

Ala Gln Pro Cys Cys Arg Pro Thr Ala Tyr Glu Asp Glu Val Ser Phe
                165                 170                 175

Leu Asp Ala His Ser Arg Tyr His Thr Val His Glu Leu Ser Ala Arg
            180                 185                 190

Glu Cys Ala Cys Val
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<210> 7
<211> 156
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<213> Homo sapiens

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Met Ala Val Gly Lys Phe Leu Leu Gly Ser Leu Leu Leu Leu Ser Leu
1 5 10 15

Gln Leu Gly Gln Gly Trp Gly Pro Asp Ala Arg Gly Val Pro Val Ala
20 25 30

Asp Gly Glu Phe Ser Ser Glu Gln Val Ala Lys Ala Gly Gly Thr Trp
35 40 45

Leu Gly Thr His Arg Pro Leu Ala Arg Leu Arg Arg Ala Leu Ser Gly
50 55 60

Pro Cys Gln Leu Trp Ser Leu Thr Leu Ser Val Ala Glu Leu Gly Leu
65 70 75 80

Gly Tyr Ala Ser Glu Glu Lys Val Ile Phe Arg Tyr Cys Ala Gly Ser
85 90 95

Cys Pro Arg Gly Ala Arg Thr Gln His Gly Leu Ala Leu Ala Arg Leu
100 105 110

Gln Gly Gln Gly Arg Ala His Gly Gly Pro Cys Cys Arg Pro Thr Arg
115 120 125

Tyr Thr Asp Val Ala Phe Leu Asp Asp Arg His Arg Trp Gln Arg Leu
130 135 140

Pro Gln Leu Ser Ala Ala Ala Cys Gly Cys Gly Gly
145 150 155

<210> 8
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<213> Homo sapiens

<400> 8
Met Lys Leu Trp Asp Val Val Ala Val Cys Leu Val Leu Leu His Thr
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Ala Ser Ala Phe Pro Leu Pro Ala Gly Lys Arg Pro Pro Glu Ala Pro
20 25 30

Ala Glu Asp Arg Ser Leu Gly Arg Arg Arg Ala Pro Phe Ala Leu Ser
35 40 45

Ser Asp Ser Asn Met Pro Glu Asp Tyr Pro Asp Gln Phe Asp Asp Val
50 55 60

```
Met Asp Phe Ile Gln Ala Thr Ile Lys Arg Leu Lys Arg Ser Pro Asp
 65                  70                  75                  80

Lys Gln Met Ala Val Leu Pro Arg Arg Glu Arg Asn Arg Gln Ala Ala
                 85                  90                  95

Ala Ala Asn Pro Glu Asn Ser Arg Gly Lys Gly Arg Arg Gly Gln Arg
            100                 105                 110

Gly Lys Asn Arg Gly Cys Val Leu Thr Ala Ile His Leu Asn Val Thr
        115                 120                 125

Asp Leu Gly Leu Gly Tyr Glu Thr Lys Glu Glu Leu Ile Phe Arg Tyr
    130                 135                 140

Cys Ser Gly Ser Cys Asp Ala Ala Glu Thr Thr Tyr Asp Lys Ile Leu
145                 150                 155                 160

Lys Asn Leu Ser Arg Asn Arg Arg Leu Val Ser Asp Lys Val Gly Gln
                165                 170                 175

Ala Cys Cys Arg Pro Ile Ala Phe Asp Asp Asp Leu Ser Phe Leu Asp
            180                 185                 190

Asp Asn Leu Val Tyr His Ile Leu Arg Lys His Ser Ala Lys Arg Cys
        195                 200                 205

Gly Cys Ile
    210
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<213> Homo sapiens

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<212> DNA
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<400> 10
ttttttcctt ggcggccgct cagcccaggc agccgcagg 39

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<213> Homo sapiens

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<222> (122)
<223> glycosylated asparagine

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Pro Pro Pro Gln Pro Ser Arg Pro Ala Pro Pro Pro Pro Ala Pro Pro
1 5 10 15

Ser Ala Leu Pro Arg Gly Gly Arg Ala Ala Arg Ala Gly Gly Pro Gly
20 25 30

Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln
35 40 45

Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu
50 55 60

Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro
65 70 75 80

His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro
85 90 95

Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg
100 105 110

Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val
115 120 125

Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
130 135 140

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<212> PRT
<213> Homo sapiens

<220>
<221> CARBOHYD
<222> (98)
<223> glycosylated asparagine

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Ala Ala Arg Ala Gly Gly Pro Gly Ser Arg Ala Arg Ala Ala Gly Ala
1 5 10 15

Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Arg Ala Leu Gly
20 25 30

Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg Phe Cys Ser Gly
35 40 45

Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu
50 55 60

Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro Val Ser
65 70 75 80

Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp
85 90 95

```
Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser Ala Thr Ala Cys
            100                 105                 110

Gly Cys Leu Gly
        115
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<210> 13
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<220>
<221> CARBOHYD
<222> (95)
<223> glycosylated asparagine

<400> 13

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Ala Gly Gly Pro Gly Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys
  1               5                  10                  15

Arg Leu Arg Ser Gln Leu Val Pro Val Arg Ala Leu Gly Leu Gly His
             20                  25                  30

Arg Ser Asp Glu Leu Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg
         35                  40                  45

Arg Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala
     50                  55                  60

Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys
 65                  70                  75                  80

Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser
                 85                  90                  95

Thr Trp Arg Thr Val Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu
            100                 105                 110

Gly
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<210> 14
<211> 112
<212> PRT
<213> Homo sapiens

<400> 14

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Gly Gly Pro Gly Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg
  1               5                  10                  15

Leu Arg Ser Gln Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg
             20                  25                  30

Ser Asp Glu Leu Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg
         35                  40                  45
```

```
Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly
     50                  55                  60

Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys
 65                  70                  75                  80

Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr
                 85                  90                  95

Trp Arg Thr Val Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
            100                 105                 110
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<212> PRT
<213> Homo sapiens

<400> 15

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Gly Pro Gly Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu
  1               5                  10                  15

Arg Ser Gln Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser
             20                  25                  30

Asp Glu Leu Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala
         35                  40                  45

Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala
     50                  55                  60

Leu Arg Pro Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg
 65                  70                  75                  80

Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp
                 85                  90                  95

Arg Thr Val Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
            100                 105                 110
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<210> 16
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<212> PRT
<213> Homo sapiens

<400> 16

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Pro Gly Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg
  1               5                  10                  15

Ser Gln Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp
             20                  25                  30

Glu Leu Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg
```

35 40 45

Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu
50 55 60

Arg Pro Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro
65 70 75 80

Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg
85 90 95

Thr Val Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
100 105 110

<210> 17
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<213> Homo sapiens

<400> 17
Gly Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser
1 5 10 15

Gln Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu
20 25 30

Leu Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser
35 40 45

Pro His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg
50 55 60

Pro Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr
65 70 75 80

Arg Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr
85 90 95

Val Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
100 105

<210> 18
<211> 108
<212> PRT
<213> Homo sapiens

<400> 18
Ser Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln
1 5 10 15

Leu Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu
20 25 30

Val Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro
35 40 45

His Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro
50 55 60

Pro Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg
65 70 75 80

Tyr Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val
85 90 95

Asp Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
100 105

<210> 19
<211> 107
<212> PRT
<213> Homo sapiens

<400> 19
Arg Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu
1 5 10 15

Val Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu Val
20 25 30

Arg Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro His
35 40 45

Asp Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro
50 55 60

Pro Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr
65 70 75 80

Glu Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val Asp
85 90 95

Arg Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
100 105

<210> 20
<211> 106
<212> PRT
<213> Homo sapiens

<400> 20
Ala Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu Val
1 5 10 15

Pro Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu Val Arg
20 25 30

Phe Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro His Asp
35 40 45

Leu Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro
50 55 60

Gly Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu
65 70 75 80

Ala Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val Asp Arg
85 90 95

Leu Ser Ala Thr Ala Cys Gly Cys Leu Gly
100 105

<210> 21
<211> 105
<212> PRT
<213> Homo sapiens

<400> 21
Arg Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro
1 5 10 15

Val Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe
20 25 30

Arg Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu
35 40 45

Ser Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly
50 55 60

Ser Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala
65 70 75 80

Val Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu
85 90 95

Ser Ala Thr Ala Cys Gly Cys Leu Gly
100 105

<210> 22
<211> 104
<212> PRT
<213> Homo sapiens

<400> 22
Ala Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val
1 5 10 15

Arg Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg
20 25 30

Phe Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser
35 40 45

Leu Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser
50 55 60

Arg Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val

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 65                  70                  75                  80

Ser Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser
                85                  90                  95

Ala Thr Ala Cys Gly Cys Leu Gly
            100
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<210> 23
<211> 103
<212> PRT
<213> Homo sapiens

<400> 23

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Ala Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Arg
  1               5                  10                  15

Ala Leu Gly Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg Phe
             20                  25                  30

Cys Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser Leu
         35                  40                  45

Ala Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg
     50                  55                  60

Pro Val Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser
 65                  70                  75                  80

Phe Met Asp Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser Ala
                85                  90                  95

Thr Ala Cys Gly Cys Leu Gly
            100
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<210> 24
<211> 102
<212> PRT
<213> Homo sapiens

<400> 24

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Gly Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Arg Ala
  1               5                  10                  15

Leu Gly Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg Phe Cys
             20                  25                  30

Ser Gly Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser Leu Ala
         35                  40                  45

Ser Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro
     50                  55                  60

Val Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe
 65                  70                  75                  80
```

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Met Asp Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser Ala Thr
                 85                  90                  95

Ala Cys Gly Cys Leu Gly
            100
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<210> 25
<211> 101
<212> PRT
<213> Homo sapiens

<400> 25

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Ala Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Arg Ala Leu
  1               5                  10                  15

Gly Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg Phe Cys Ser
             20                  25                  30

Gly Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser
         35                  40                  45

Leu Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro Val
     50                  55                  60

Ser Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met
 65                  70                  75                  80

Asp Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser Ala Thr Ala
                 85                  90                  95

Cys Gly Cys Leu Gly
            100
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<210> 26
<211> 100
<212> PRT
<213> Homo sapiens

<400> 26

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Arg Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Arg Ala Leu Gly
  1               5                  10                  15

Leu Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg Phe Cys Ser Gly
             20                  25                  30

Ser Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu
         35                  40                  45

Leu Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro Val Ser
     50                  55                  60

Gln Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp
 65                  70                  75                  80

Val Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser Ala Thr Ala Cys
                 85                  90                  95
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Gly Cys Leu Gly
100

<210> 27
<211> 99
<212> PRT
<213> Homo sapiens

<400> 27
Gly Cys Arg Leu Arg Ser Gln Leu Val Pro Val Arg Ala Leu Gly Leu
1 5 10 15

Gly His Arg Ser Asp Glu Leu Val Arg Phe Arg Phe Cys Ser Gly Ser
20 25 30

Cys Arg Arg Ala Arg Ser Pro His Asp Leu Ser Leu Ala Ser Leu Leu
35 40 45

Gly Ala Gly Ala Leu Arg Pro Pro Pro Gly Ser Arg Pro Val Ser Gln
50 55 60

Pro Cys Cys Arg Pro Thr Arg Tyr Glu Ala Val Ser Phe Met Asp Val
65 70 75 80

Asn Ser Thr Trp Arg Thr Val Asp Arg Leu Ser Ala Thr Ala Cys Gly
85 90 95

Cys Leu Gly